

Nova Note # 1105 Version 2

Bag Test Proposal

Hans Jostlein

9/26/2006

Abstract

We propose a practical test of the bag correction system, using one full size 16-cell NOVA extrusion. The test is inexpensive and can be mounted quickly.

Introduction

In another document under the same doc number we have proposed a scheme to stabilize the NOVA Far detector even in the event that buckling should start.

It is a dynamic correction system, applying tailored forces to the detector blocks to stop and reverse any buckling pattern.

It uses very low pressure plastic bags, installed in each gap during construction

Why do a Test ?

- Find out if there are any practical problems
- Test and refine design ideas
- Prove the concept

What Size Test ?

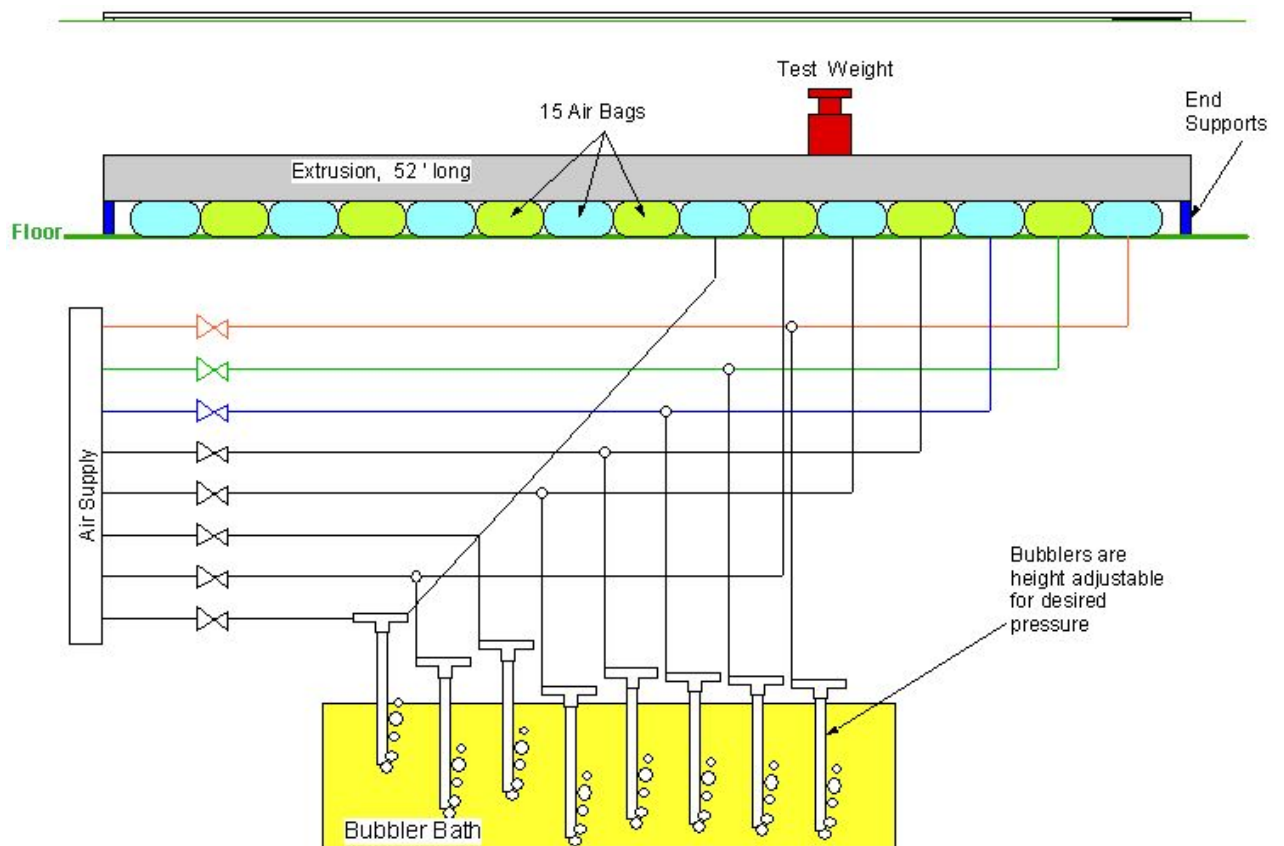
It seems convincing to use a full length, current type, 16-cell, NOVA extrusion.

This will allow to use 15 separate air bags and pressure lines, just as NOVA blocks would have.

Testing an extrusion in the horizontal position increases the needed air pressures to values comparable to those in a full system of blocks.

In addition, tests can be performed with the extrusion empty and also partially or fully filled with water.

As a third test, a point weight can be added to learn to deal with non-uniform force requirements.



Anti Buckling Bag Test

Hans Jostlein
9/26/2006

Effort and Costs

Required Materials:

- One full length, 16-cell extrusion. This extrusion will not be damaged, except for the addition of end seals. It can be used for other tests after completion of this one
- 15 small valves; plastic tubing and a pressure regulator
- 15 pool-toy type air mattresses
-

Required Labor:

Mostly my time, maybe a week's work.

Conclusion

We request approval to carry out this bag test.

We will learn how well the block stabilization works in practice.